

Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20554

In the Matter of )  
 )  
Amendment of Part 15 of the Commission's )  
Rules to Allow Certification of )  
Equipment in the 24.05 to 24.25 GHz Band )  
at Field Strengths up to 2500 mV/m )

ET Docket No. 98-156 /

To: The Commission

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FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF THE SECRETARY

PETITION FOR RECONSIDERATION

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February 13, 2002

No. of Copies rec'd 074  
List A B C D E

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## SUMMARY

ARRL, the National Association for Amateur Radio, also known as The American Radio Relay League, Incorporated (ARRL), requests that the Commission reconsider a substantial portion of its *Report and Order* in this proceeding, FCC 01-357, released December 14, 2001. ARRL requests that the Commission reconsider and reverse that portion of the *Report and Order* which addresses the Commission's jurisdiction to authorize the unlicensed operation of radio frequency devices which have significant potential for interference to licensed radio services, pursuant to Section 302(a) of the Communications Act of 1934, as amended. 47 U.S.C. §302(a). It is ARRL's contention that the Commission has no jurisdiction, pursuant to Section 302(a) or otherwise, to authorize by rulemaking the operation of *unlicensed* devices which have significant potential for interference to licensed radio services.

Section 301 of the Communications Act requires that all devices which are operated or used "for the transmission of energy or communications or signals by radio...from one place in any State, Territory, or possession of the United States or in the District of Columbia to another place in the same State, Territory, possession or District;...or...within any State when the effects of such use extend beyond the borders of said State, or when interference is caused by such use or operation with the transmission of such energy, communications, or signals from within said State to any place beyond its borders, or from any place beyond its borders to any place within said State; or...upon any vessel or aircraft of the United States...or... upon any other mobile stations" must have a license. There is no exception to this requirement for unlicensed RF or consumer devices, and Section 302(a) of the Communications Act does not constitute such. Instead, Section 302(a) grants jurisdiction to the Commission to limit the interference potential of RF devices of all types at the manufacturing stage. This was to avoid the administratively impossible task of interference resolution from RF devices in the field. In order to permit unlicensed Part 15 devices to operate in bands allocated to licensed radio services, the Commission must find that the device will cause "no harmful interference to licensed services." If that finding cannot be made, the devices must be licensed pursuant to Section 301 of the Communications Act.

The Commission, however, has expanded the concept of unlicensed devices far beyond what its original concept allowed, and far beyond what is permissible pursuant to Section 301. Devices such as those authorized in this proceeding serve the exact function of licensed point-to-point microwave services, and therefore require individual licenses. Further, because of the significant interference potential of such devices operating with field strengths of 2500 mV/m (measured at 3 meters) to licensed services, the Commission cannot authorize them on an unlicensed basis consistent with Section 301 of the Communications Act.

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**To: The Commission**

**PETITION FOR RECONSIDERATION**

ARRL, the National Association for Amateur Radio, also known as The American Radio Relay League, Incorporated (ARRL), by counsel and pursuant to Section 1.429 of the Commission's rules (47 C.F.R. §1.429), hereby respectfully requests that the Commission reconsider a substantial portion of its *Report and Order* in this proceeding, FCC 01-357, released December 14, 2001. This Petition is timely pursuant to Section 1.429(d) of the Rules, inasmuch as the said *Report and Order* was published in the Federal Register on January 14, 2002. See, 47 C.F.R. §1.4(b). Specifically, ARRL requests that the Commission reconsider and reverse that portion of the *Report and Order* which addresses the Commission's jurisdiction to authorize the unlicensed operation of radio frequency devices which have significant potential for interference to licensed radio services, pursuant to Section 302(a) of the Communications Act of 1934, as amended. 47 U.S.C. §302(a). It is ARRL's contention that the Commission has no jurisdiction, pursuant to Section 302(a) or otherwise, to authorize by rulemaking the operation of *unlicensed* devices which have significant potential for interference to licensed radio services. As good cause for its Petition, ARRL states as follows:

## I. Introduction

1. The captioned proceeding was commenced by the filing in 1997 of a Petition for Rule Making, RM-9189, by Sierra Digital Communications, Inc., seeking to allow the operation of unlicensed fixed, point-to-point transmitters in the 24.00-24.25 GHz band, using high-gain (33 dBi), narrow-beamwidth antennas, and field strengths up to 2.5 V/m (measured at 3 meters). The petition triggered the issuance of the *Notice of Proposed Rule Making* (the Notice), FCC 98-156, released September 1, 1998.

2. ARRL argued in comments filed December 7, 1998 in response to the Notice that the proposed power level and antenna gain figures are entirely inappropriate for Part 15 unlicensed facilities. What was proposed amounted to a request that additional spectrum be allocated for fixed, point-to-point microwave applications as are routinely conducted on a licensed basis under Part 101 of the Commission's Rules. However, there is sufficient microwave spectrum already allocated for licensed, fixed applications. ARRL also argued that there would be severe interference to the Amateur and Amateur-Satellite Services from the Notice proposal, and specifically to a substantial number of terrestrial amateur weak-signal stations active at 24 GHz, most of which activity is centered at 24.192 GHz. These stations utilize the same sensitive receivers as do Amateur Satellite communications in the 24.00-24.25 GHz band.

3. The proponents of the Notice proposal claimed that there would not be significant interference to the Amateur Service from the proposed 2.5 V/m directional signals from point-to-point unlicensed microwave facilities at 24 GHz. ARRL established in interference studies filed in the proceeding that there indeed would be interference. Moreover, because of the extremely high field strengths of signals in the main lobes of the antennas to be employed, ARRL argued

that the Commission could not authorize these devices on an unlicensed basis. ARRL stated, in part:

The Commission must at some point acknowledge the fact that Part 15 devices are allowed under the Communications Act only where they have no interference potential to licensed services. If they have such potential, they cannot be operated or authorized to operate on an unlicensed basis. There are numerous instances of interference between amateur stations and narrowband Part 15 devices in other bands, operating at far lower power levels than the 2.5 V/m sought here, and the incompatibility between the two uses at 24 GHz is obvious. It is not the League's burden to prove that interference will occur; it is the petitioner's burden, and the Commission's obligation under the Communications Act to prove that interference will *not* occur to licensed services. That is the admission ticket for unallocated, unlicensed devices in any band. In this respect, the burden has not been met.

ARRL Reply Comments, at paragraph 6.

Earlier, in its comments, ARRL stated its view of the extent of the Commission's jurisdiction to authorize the operation of unlicensed devices:

Even if there was some impracticality in obtaining licenses for point-to-point microwave facilities, the Commission is without jurisdiction to allow point-to-point microwave devices, which have significant interference potential to licensed services in the same band, (footnote omitted) to operate on an unlicensed basis. Part 15 devices have no allocation status, internationally or domestically. These devices are permitted on an "at-sufferance" basis: they must not cause any interference to licensed radio services, and they must tolerate interference received from licensed radio services in the same bands. The Communications Act of 1934 is devoid of any authority to allow unlicensed devices with substantial interference potential; such devices must be licensed. The only authority to permit unlicensed devices under the Act is with respect to radio control and citizen's radio service facilities, 47 U.S.C. §307(e), (footnote omitted) and for the Commission to regulate the interference potential of RF devices by "reasonable regulation", 47 U.S.C. §302. This, the Commission has done by permitting operation of such devices in bands allocated, on a primary basis, to one or more licensed radio services, but only where the operation of the unlicensed devices has been determined to be unlikely to cause interference to the licensed radio services. The Commission cannot authorize these devices without a license, merely because interference potential outside the main lobe of the antenna is less than that in the boresight of the antenna.

ARRL Comments, at paragraph 6.

4. The Commission, in enacting the rule changes proposed in the Notice, took issue with the ARRL's position regarding the Commission's jurisdiction to authorize the operation of unlicensed devices. At paragraph 2 of the *Report and Order*, it states:

The Commission permits operation of non-licensed radio frequency (RF) devices under Part 15 of the rules. Part 15 equipment operates on a non-interference basis to licensed radio services. That is, the devices must not cause interference to licensed radio services and they must accept any interference received from licensed services (citing 47 C.F.R. §15.5). If a Part 15 device causes harmful interference to a licensed service, operation of the device must cease until the interference is corrected (*Id.*). To decrease the likelihood of interference, Part 15 transmitters are generally restricted to very low signal levels...

ARRL agrees with the foregoing. At paragraph 12 of the *Report and Order*, however, the Commission declared that its jurisdiction relative to unlicensed devices substantially exceeds that enunciated by ARRL:

Finally, ARRL asserts that the Commission must at some point acknowledge that Part 15 devices '[A]re allowed under the Communications Act only where they have no interference potential to licensed services (citation to ARRL reply comments omitted).' We do not agree with this viewpoint. The Communications Act of 1934 as amended provides that, '[T]he Commission may, consistent with the public interest, convenience and necessity, make reasonable regulations (1) governing the interference potential of devices which in their operation are capable of emitting radio frequency energy by radiation, conduction, or other means in sufficient degree to cause harmful interference to radio communications...' [citing 47 U.S.C. §302(a)]. ARRL's interpretation of this authority is overly conservative. The operating requirements of Part 15 appropriately provide a means for allowing unlicensed devices to share spectrum with licensed services with little risk of interference to licensed services. If interference does occur, these rules provide adequate protection to licensed services by requiring the unlicensed device to cease operation until the problem is corrected (footnote omitted). The rules permit the creation and advancement of new and innovative unlicensed low power products and services.

## **II. The Commission's Jurisdiction to Permit Unlicensed Devices is Limited By Section 301 of the Communications Act of 1934, As Amended.**

5. ARRL does not dispute that the Commission's Rules for the operation of Part 15

devices have, in the past, generally been appropriate for operation of devices which incidentally utilize RF energy in their operation, or which have such low radiated or conducted emission levels that interference is unlikely. However, the Commission is incorrect in its assumption that it has unfettered jurisdiction pursuant to Section 302(a) of the Communications Act to authorize unlicensed devices, regardless of the interference potential of those devices to licensed radio services. The issue is not whether the Commission has jurisdiction to enact reasonable regulations concerning RF devices. Rather, it is whether or not a device which has substantial interference potential to licensed radio services must be *licensed* in order to be operated. The limit of the Commission's jurisdiction to permit the operation of RF devices without licenses is reached when it is concluded that the operation of such devices has a substantial interference potential to licensed services. To conclude otherwise, and to rely solely on the unenforceable aftermarket interference resolution provisions of Section 15.5 of the Commission's rules, is in essence the abdication of the Commission's obligation to manage the spectrum properly, and a violation of Section 301 of the Communications Act. As is discussed below, Section 302(a) of the Act is separate from, and does not modify or supplant, the licensing requirement of Section 301.

6. Section 301 of the Communications Act of 1934, as amended (47 U.S.C. §301) is quite clear as to the obligation of anyone who operates or uses an "apparatus for the transmission of energy or communications or signals by radio...from one place in any State, Territory, or possession of the United States or in the District of Columbia to another place in the same State, Territory, possession or District;...or...within any State when the effects of such use extend beyond the borders of said State, or when interference is caused by such use or operation with

the transmission of such energy, communications, or signals from within said State to any place beyond its borders, or from any place beyond its borders to any place within said State; or...upon any vessel or aircraft of the United States...or... upon any other mobile stations." That obligation is that no such apparatus can be used or operated "except under and in accordance with this chapter and with a license in that behalf granted under the provisions of this chapter."

7. There are no exemptions from this licensing requirement for devices which may cause interference to licensed radio services. However, the Communications Amendments Act of 1982, Public Law 97-259, provided for the elimination of issuance of individual licenses in the Citizens Radio Service, and in the Radio Control Service. The Telecommunications Act of 1996, Pub. L. 104-104, 110 Stat. 56, Feb. 8, 1996, amended Section 307(e) of the Communications Act of 1934 to add to those services which may by FCC rule operate without individual licenses the aviation radio service (for aircraft stations operated on domestic flights when such aircraft are not otherwise required to carry a radio station); and the maritime radio service (for ship stations navigated on domestic voyages when such ships are not otherwise required to carry a radio station). There is, however, no general exemption from the licensing requirement for RF devices. The purpose of the licensing requirement in Section 301 of the Communications Act as a prerequisite to the use or operation of apparatus for the transmission of communications by radio is to prevent interference with radio communications. *Todisco v. United States*, 298 F. 2d 208 (9th Cir. 1961); *cert. denied*, 368 U.S. 989 (1961).

8. What, therefore, is the rationale for allowing unlicensed RF devices in any case? The Commission's rules governing Part 15 unlicensed devices were established in approximately 1938, at which time the Commission "allowed devices employing relatively low level RF signals

to be operated without the need for individual licensing *as long as their operation caused no harmful interference to licensed services* and the device did not generate emissions or field strength levels greater than a specified level." *Notice of Proposed Rule Making, Revision of Part 15 of the Rules Regarding the Operation of Radio Frequency Devices Without An Individual License*; FCC 87-300, 2 FCC Rcd. 6135 (1987); *First Report and Order*, 66 RR 2d 295, 298 (1989). The "specified level" applied to early Part 15 devices was 15 microvolts per meter measured at a distance equivalent to the wavelength of the operating frequency ( $\Lambda$ ) divided by  $2\pi$ . As the frequency of these devices increased, and achieving that field strength level became more difficult, "over the years the Commission amended and expanded Part 15 of the rules to permit the non-licensed operation of devices at higher frequencies in those cases *where it could be determined that the mass-marketing of such products would not result in harmful interference to authorized services.*" *Id.*, 2 FCC Rcd. at 6135 (emphasis added).

### **III. Section 302(a) Obligates The Commission To Limit Interference Potential of RF Devices, And Creates No Exception to Section 301 Licensing Requirements**

9. The Commission's jurisdiction to permit unlicensed RF devices derives from the fact that they are configured so as not to result in harmful interference to licensed radio services, and can be authorized on that basis, but only on that basis. The instant *Report and Order* asserts otherwise: that the authority to allow these devices derives from Section 302(a) of the Communications Act. That Section, however, does not constitute an exception to the license requirements of Section 301. Instead, Section 302(a) was specifically enacted by Congress so that the Commission would have the authority to regulate RF equipment at the manufacturer level, rather than (as was previously the case) at the user level, thus to *preclude* interference to licensed services before they are marketed to the public. Section 302(a) provides as follows:

The Commission may, consistent with the public interest, convenience and necessity, make reasonable regulations (1) governing the interference potential of devices which in their operation are capable of emitting radio frequency energy by radiation, conduction, or other means in sufficient degree to cause harmful interference to radio communications...

10. According to its legislative history, the purpose of this statute was exactly the opposite of what the Commission presumes in the *Report and Order*. It was not to enable the Commission to permit any unlicensed RF devices it chooses, or for which there may be consumer demand. Rather, Congress' intention was to "empower the Commission to deal with the interference problem at its root source -- the sale by some manufacturers of equipment and apparatus which do not comply with the Commission's Rules." *1968 U.S. Code Cong. & Admin. News*, p. 2486. In considering this legislation, Congress perceived a gap in the Commission's then-existing authority. Prior to the passage of Section 302(a), the Commission had the power to "prohibit the use of equipment or apparatus which causes interference to radio communications." *Id.*, at p. 2487. In other words, it had no authority to control the interference potential of RF devices at the manufacturing level. It could take action only against a user of equipment when an instance of harmful interference had occurred. *Id.*, at pp. 2487-8. In the view of the Senate, it was equitable to place the burden of equipment compliance on the manufacturer in the first instance as opposed to the user who would purchase the device assuming its operation to be legal. *Id.*, at 2487-8. Therefore, the Commission was expected to address the then-burgeoning problem of interference to licensed radio services by regulating the manufacture and the interference potential of the device, rather than regulating only the user of the device in the field. This authority applied whether or not the device was part of a licensed radio service.

11. On June 25, 1965, the Director of Telecommunications Management in the Office of the President sent a letter to Senator Pastore, the Chairman of the Subcommittee on Communications of the Commerce Committee, stating in part as follows:

While the Commission takes the position, and I believe, properly, that the Communications Act prohibits the use of equipment or apparatus which causes interference to radio communications, it has no specific rulemaking authority under the act to require that before equipment or apparatus is put on the market it must be properly designed to prevent harmful interference. Since the prohibition falls on the use of the offending equipment, it means that the Commission, in trying to control radio interference, is confined to apprehending the users of equipment which in most cases has been purchased in good faith on the assumption that its operation would be legal. This after-the-fact approach is quite inadequate to control the "radiation smog" which makes it increasingly difficult for any user of radio communications to obtain interference-free reception.

*Id.*, at 2497.

On June 9, 1965, the Commission's Chairman, E. William Henry, wrote to the Director, Consumer Products Division, Electronic Industries Association, concerning the proposed legislation, explaining the intent of it as follows:

The purpose of the pending bills is to extend our authority and thereby permit the Commission to apply its regulations directly to the manufacture and sale of the equipment. Thus, the fundamental difference between the existing and the requested additional authority is to permit regulation of equipment capable of causing interference to radio reception before this equipment is sold to the public. Our criteria and considerations in evaluating the interference potential of such equipment will remain as they now are.

It should be clear that it is manifestly impossible to locate and correct each individual piece of equipment producing interference, whereas it is reasonably feasible to regulate the manufacture and distribution of such equipment. Thus, it is our primary objective to require manufacturers and sellers to comply with the regulations which are now applicable only to the user.

*Id.*, at 2497-8.

#### **IV. Reliance On Post-Marketplace Interference Resolution is Misplaced**

12. Two conclusions are inescapable from a review of the legislative history of Section 302(a) of the Communications Act. First, there is absolutely no basis for viewing that section as creating an exception to the licensing requirements of Section 301 of the Act. Second, it is clear that an after-market remedy applicable to users of the devices is not a sufficient means of regulating interference. Indeed, it was exactly that finding that caused Section 302(a) to be enacted in the first place. So, when the Commission, in applying Section 302(a), evaluates proposed rules which would authorize *unlicensed* RF devices in certain configurations, it has to be able to conclude that the devices operating according to those parameters will not cause interference to licensed services. If it can't make that conclusion, the devices have to be operated on a licensed basis under some rule part other than Part 15. In this proceeding, and in other recent Commission proceedings, this statutory obligation has not been properly discharged.

13. The Commission states at paragraph 12 of the *Report and Order* that "[t]he operating requirements of Part 15 appropriately provide a means for allowing unlicensed devices to share (sic) spectrum with licensed services with little risk of interference to licensed services. If interference does occur, these rules provide adequate protection to licensed services by requiring the unlicensed device to cease operation until the problem is corrected...". In response to this, ARRL would suggest, first, that Part 15 devices don't "share" spectrum with licensed services, applying the normal meaning of that term in spectrum allocations parlance, because the devices are on an "at sufferance" basis and have no allocation status. More fundamentally, however, the Commission's willingness to rely on adherence to its Section 15.5 operation guidelines in lieu of reasonable regulations governing interference potential of the devices themselves is terribly

misplaced. Consumers of Part 15 devices have no expectation that their device may cause interference to licensed services, or any expectation that they will have to cease using the device if it causes interference. Congress realized this as early as 1965, and also understood that the Commission cannot possibly enforce such provisions against users of unlicensed RF devices. Licensed radio facilities receiving interference, therefore, are without any practical remedy. The Commission is expected to enact reasonable regulations, therefore, limiting the interference potential of products. Instead, it has stretched the concept of unlicensed devices in this and other proceedings beyond the point that the Section 301 licensing requirements will allow,<sup>1</sup> and in the process claiming jurisdiction to do so based on a statutory requirement that obligates it to regulate in such a way as to *limit* interference from RF devices.

## V. Conclusions

14. From the foregoing, the following conclusions can be drawn. First of all, Section 301 of the Communications Act requires that all devices which are operated or used "for the transmission of energy or communications or signals by radio...from one place in any State, Territory, or possession of the United States or in the District of Columbia to another place in the same State, Territory, possession or District;...or...within any State when the effects of such use extend beyond the borders of said State, or when interference is caused by such use or operation with the transmission of such energy, communications, or signals from within said

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<sup>1</sup> Consider that the Part 15 regulations in place at the outset permitted unlicensed devices to operate with a maximum field strength of 15 uV/m at Lambda over 2 Pi. The instant *Report and Order* permits unlicensed operation of point-to-point microwave facilities at up to 2500 mV/m measured at 3 meters. Given this, and the Commission's misplaced reliance on Section 302(a) of the Communications Act, one wonders whether there is *any* point at which the Commission would determine today that a device must be licensed, rather than operated on an unlicensed basis.

State to any place beyond its borders, or from any place beyond its borders to any place within said State; or...upon any vessel or aircraft of the United States...or... upon any other mobile stations" must have a license. There is no exception to this requirement for unlicensed RF or consumer devices, and Section 302(a) of the Communications Act does not constitute such. Instead, Section 302(a) grants jurisdiction to the Commission to limit the interference potential of RF devices of all types at the manufacturing stage. This was to avoid the administratively impossible task of interference resolution from RF devices in the field. In order to permit unlicensed Part 15 devices to operate in bands allocated to licensed radio services, therefore, the Commission must find that the device will cause "no harmful interference to licensed services." 66 RR 2d at 298. If that finding cannot be made, the devices must be licensed pursuant to Section 301 of the Communications Act. The Commission, however, has expanded the concept of unlicensed devices far beyond what its original concept allowed, and far beyond what is permissible pursuant to Section 301. Devices such as those authorized in this proceeding serve the exact function of licensed point-to-point microwave services, and therefore require individual licenses. Further, because of the significant interference potential of such devices operating with field strengths of 2500 mV/m (measured at 3 meters) to licensed services (which interference potential was demonstrated by ARRL in comments in this proceeding), the Commission cannot authorize them on an unlicensed basis consistent with Section 301 of the Communications Act.

Therefore, the foregoing considered, ARRL, the National Association for Amateur Radio respectfully requests that the Commission reconsider its *Report and Order* adopted in this proceeding, and review the rules adopted in view of the limitations on its jurisdiction as discussed herein. It is also requested that no change in existing Part 15 regulations governing

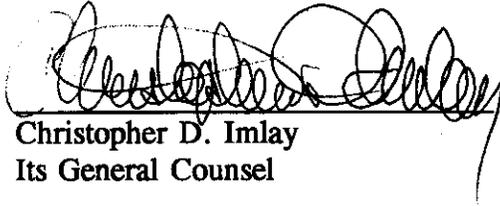
the 24.05-24.25 GHz band be implemented.

Respectfully submitted,

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